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Foundations of wireless Springer Science & Business Media

This book provides an overview on the molecular mode of action of carcinogenic polycyclic aromatic hydrocarbons (PAHs). PAHs are by-products arising from incomplete combustion of organic matter that are frequently released into our environment, and thus are ubiquitously detectable. Many PAHs are strong carcinogens in rodent bioassays and have been linked to increased incidences of various types of cancer in humans. The present book covers all aspects of PAH-induced carcinogenesis; it is a collection of articles written by some of the most recognizable PAH researchers, reviewing the present knowledge in this field. The topics include: exposure to and biomonitoring of PAHs in the human population; metabolic activation of PAHs; genotoxicity and repair of PAH-induced DNA damage; and factors modulating individual susceptibility to the deleterious effects of PAHs.

Fouling of Heat Exchangers Springer Science & Business Media

This collection of papers from a prestigious IMechE conference looks at the latest innovations and techniques from experts in the field of rotating machinery from industry and academia. Reflecting latest developments in air, gas, refrigeration and related systems, these conference transactions will be of vital importance to all those equipment manufacturers, suppliers, users, and research organizations who wish to be well informed of developments and advances in this important field of engineering. Topics covered: Scroll Compressors Refrigeration Environmental Issues Screw Compressors Reciprocating Compressors Expanders Centrifugal Compressors Novel Designs Linear Compressors Numerical Modelling Operation and Maintenance

AMMTIAC Quarterly CSHL Press

IMRET 5 featured more than 80 oral and poster communications, covering the entire interdisciplinary field from design, production, modeling and characterization of microreactor devices to application of microstructured systems for production, energy and transportation, including many analytical and biological applications. A particularly strong topic was the investigation of the potential of microstructuring of reactors and systems components for process intensification. Perspectives of combining local, in situ, data acquisition with appropriate microstructuring of actuators and components within chemical and biological devices were explored in order to enhance process performance and facilitate process control.

Thin Film Processes II Rudolf Steiner Press

The first model for the distribution of ions near the surface of a metal electrode was devised by Helmholtz in 1874. He envisaged two parallel sheets of charges of opposite sign located one on the metal surface and the other on the solution side, a few nanometers away, exactly as in the case of a parallel plate capacitor. The rigidity of such a model was allowed for by Gouy and Chapman independently, by considering that ions in solution are subject to thermal motion so that their distribution from the metal surface turns out diffuse. Stern recognized that ions in solution do not behave as point charges as in the Gouy-Chapman treatment, and let the center of the ion charges reside at some distance from the metal surface while the distribution was still governed by the Gouy-Chapman view. Finally, in 1947, D. C. Grahame transferred the knowledge of the structure of electrolyte solutions into the model of a metal/solution interface, by envisaging different planes of closest approach to the electrode surface depending on whether an ion is solvated or interacts directly with the solid wall. Thus, the Gouy-Chapman-Stern-Grahame model of the so-called electrical double layer was born, a model that is still qualitatively accepted, although theoreticians have introduced a number of new parameters of which people were not aware 50 years ago.

VEE Pro CRC Press

A number of widely used contemporary processors have instruction-set extensions for improved performance in multi-media applications. The aim is to allow operations to proceed on multiple pixels each clock cycle. Such instruction-sets have been incorporated both in specialist DSPchips such as the Texas C62xx (Texas Instruments, 1998) and in general purpose CPU chips

like the Intel IA32 (Intel, 2000) or the AMD K6 (Advanced Micro Devices, 1999). These instruction-set extensions are typically based on the Single Instruction-Multiple Data-stream (SIMD) model in which a single instruction causes the same mathematical operation to be carried out on several operands, or pairs of operands, at the same time. The level of parallelism supported ranges from two floating point operations, at a time on the AMD K6 architecture to 16 byte operations at a time on the Intel P4 architecture. Whereas processor architectures are moving towards greater levels of parallelism, the most widely used programming languages such as C, Java and Delphi are structured around a model of computation in which operations take place on a single value at a time. This was appropriate when processors worked this way, but has become an impediment to programmers seeking to make use of the performance offered by multi-media instruction-sets. The introduction of SIMD instruction sets (Peleg et al.

SIMD Programming Manual for Linux and Windows Springer Nature

Nondestructive testing enables scientists and engineers to evaluate the integrity of their structures and the properties of their materials or components non-intrusively, and in some instances in real-time fashion. Applying the Nondestructive techniques and modalities offers valuable savings and guarantees the quality of engineered systems and products. This technology can be employed through different modalities that include contact methods such as ultrasonic, eddy current, magnetic particles, and liquid penetrant, in addition to contact-less methods such as in thermography, radiography, and shearography. This book seeks to introduce some of the Nondestructive testing methods from its theoretical fundamentals to its specific applications. Additionally, the text contains several novel implementations of such techniques in different fields, including the assessment of civil structures (concrete) to its application in medicine.

The Kinetic Theory of Gases John Wiley & Sons
Proceedings of the NATO Advanced Research Workshop, held in Warwick, Coventry, U.K., 30 September-3 October 2003

Compressors and Their Systems John Wiley & Sons
This sequel to the 1978 classic, *Thin Film Processes*, gives a clear, practical exposition of important thin film deposition and etching processes that have not yet been adequately reviewed. It discusses selected processes in tutorial overviews with implementation guide lines and an introduction to the literature. Though edited to stand alone, when taken together, *Thin Film Processes II* and its predecessor present a thorough grounding in modern thin film techniques. - Provides an all-new sequel to the 1978 classic, *Thin Film Processes* - Introduces new topics, and several key topics presented in the original volume are updated - Emphasizes practical applications of major thin film deposition and etching processes - Helps readers find the appropriate technology for a particular application

PCR Primer Elsevier

The Practical Handbook of Compost Engineering presents an in-depth examination of the principles and practice of modern day composting. This comprehensive book covers compost science, engineering design, operation, principles, and practice, stressing a fundamental approach to analysis throughout. Biological, physical, chemical, thermodynamic, and kinetic principles are covered to develop a unified analytical approach to analysis and an understanding of the process. A brief history of the development of composting systems, which leads to descriptions of modern processes, is presented. The *Practical Handbook of Compost Engineering* also discusses the elements of successful odor management at composting facilities, including state-of-the-art odor treatment and enhanced atmospheric dispersion. The book is excellent for all engineers, practitioners, plant operators, scientists, researchers, and students in the field.

Microreaction Technology CRC Press

Why does water always take a winding course in streams and rivers? Do common principles and rhythms underlie its movement - whether it be in the sea, in a plant, or even in the blood of a human being? In this seminal and thought-provoking work, the laws apparent in the subtle patterns of water in movement are shown to be the same as those perceptible in the shaping of bones, muscles and a myriad of other forms in nature. Fully illustrated, *Sensitive Chaos* reveals the unifying forces that underlie all living things. The author observes and explains such phenomena as the flight of birds, the formation of internal organs such as the heart, eye and ear, as well as mountain ranges and river deltas, weather and space patterns, and even the formation of the human embryo.

Automatic Measurement Control John Wiley & Sons
Authored by two longtime researchers in tobacco science, *The Chemical Components of Tobacco and Tobacco Smoke*, Second Edition chronicles the progress made from late 2008 through 2011 by scientists in the field of tobacco science. The book examines the isolation and characterization of each component. It explores developments in pertinent analytical Thermal Spray Coatings Springer Science & Business Media

This work focuses on two topics. The first is the investigation of producing filaments on copper-stabilized coated conductors, with striations made after or before electroplating the tape. The second topic is the applicability of the striations for reducing the AC losses of cables, in particular the CORC® and RACC cables, which are made with high-temperature superconductor (HTS) striated tapes. *Sensitive Chaos* Springer Science & Business Media
Sensors and Microsystems contains a selection of papers presented at the 14th Italian conference on sensors and microsystems. It provides a unique perspective on the research and development of sensors, microsystems and related technologies in Italy. The scientific values of the papers also offers an invaluable source to analysts intending to survey the Italian situation about sensors and microsystems. In an interdisciplinary approach many aspects of the disciplines are covered, ranging from materials science, chemistry, applied physics, electronic engineering and biotechnologies. Further details of the conference and its full program at the website

<http://www.microelectronicsevents.com/AISEM>
Nondestructive Testing Methods and New Applications Springer Science & Business Media
This volume illustrates how microfluidic approaches can meet the requirement of clinical diagnosis based on molecular or cellular biomarkers. *Microchip Diagnostics: Methods and Protocols* is divided into four sections describing the business aspects of the microfluidic-based systems for diagnosis, demonstrating how versatile microfluidics can be regarding to protein bioassay integration, presenting microfluidic approaches for nucleic analysis based on mono or diphasic format, and highlighting recent contributions. Written in the highly successful *Methods in Molecular Biology* series format, chapters include introductions to their respective topics, lists of the necessary materials and reagents, step-by-step, readily reproducible laboratory protocols, and tips on troubleshooting and avoiding known pitfalls.

AC Losses in High-Temperature Superconductor Tapes and Cables for Power Applications Humana

The tools and techniques used in Design of Experiments (DoE) have been proven successful in meeting the challenge of continuous improvement in many manufacturing organisations over the last two decades. However research has shown that application of this powerful technique in many companies is limited due to a lack of statistical knowledge required for its effective implementation. Although many books have been written on this subject, they are mainly by statisticians, for statisticians and not appropriate for engineers. *Design of Experiments for Engineers and Scientists* overcomes the problem of statistics by taking a unique approach using

graphical tools. The same outcomes and conclusions are reached as through using statistical methods and readers will find the concepts in this book both familiar and easy to understand. This new edition includes a chapter on the role of DoE within Six Sigma methodology and also shows through the use of simple case studies its importance in the service industry. It is essential reading for engineers and scientists from all disciplines tackling all kinds of manufacturing, product and process quality problems and will be an ideal resource for students of this topic. - Written in non-statistical language, the book is an essential and accessible text for scientists and engineers who want to learn how to use DoE - Explains why teaching DoE techniques in the improvement phase of Six Sigma is an important part of problem solving methodology - New edition includes a full chapter on DoE for services as well as case studies illustrating its wider application in the service industry Sustainability in Energy and Buildings Springer Science & Business Media

With VEE 7.0 Trial Version on CD-ROM From the depths of the oceans to the deserts of Mars, VEE Pro is being used to collect data, provide automated testing and to construct remote command and telemetry interfaces. In more everyday environments, it can be found at the heart of manufacturing, process and quality control, and industrial data analysis and management systems. VEE Pro: Practical Graphical Programming introduces you to the fundamentals of Visual Engineering Environment Programming providing tools for writing programs for: data acquisition; test-data processing; process control. Prelabs introduce new programming objects, concepts or techniques. They are collected in a separate appendix so that your assimilation of novel material does not interrupt the practical lesson flow. They can be easily referenced when you are devising a new program. Each of the 18 lessons can be presented in a whole-group session. They can also be studied privately prior to the labs being developed in the classes. You will see the power and flexibility of VEE Pro in action in special labs of increasing complexity based around the monitoring and control of a virtual vehicle radiator. The process begins with the simple simulation of a thermometer and ends with the statistical logging of tests. Exceeding test limits will trigger audio and visual warnings. The six appendixes are valuable tools for reference. They explain how to navigate within the programs, collate related data, technical term explanations, and cross-referenced partial programming sequences and outcomes. If you are a student taking classes in VEE Pro, this book will make your life easier and the learning process more straightforward. If you are an instructor teaching the package, it will provide a simple and effective structure for your lessons and also for the course as a whole. If you use VEE Pro for design or data analysis in a manufacturing/industrial environment, VEE Pro: Practical Graphical Programming will provide the complete and easy-to-use reference you need to develop a program.

The Tesla Disc Turbine Elsevier

This unique and comprehensive text considers all aspects of heat exchanger fouling from the basic science of how surfaces become fouled to very practical ways of mitigating the problem and from mathematical modelling of different fouling mechanisms to practical methods of heat exchanger cleaning. The problems that restrict the efficient operation of equipment are described and the costs, some of them hidden costs, that are associated with the fouling of heat exchangers are discussed. Some simple concepts and models of the fouling processes are presented as part of the introduction to the subject. Advice on the selection, design, installation and commissioning of heat exchangers to minimise fouling is given. A large part of the text is devoted to the use of chemical and other additives to reduce or eliminate the problem of fouling. Another large section is designed to give information on both on-line and off-line cleaning of heat exchangers. One of the difficulties faced by designers and operators of heat exchangers is anticipating the likely extent of fouling problems to be encountered with different flow streams. Another large section addresses the question and describes methods that have been used in attempting to define fouling potential. The book concludes with a chapter on how fouling information can be obtained using plant data, field tests and laboratory studies.

Sensors and Microsystems World Scientific

This extensively updated and revised version builds on the success of the first edition featuring new discoveries in powder technology, spraying techniques, new coatings applications and testing techniques for coatings -- Many new spray techniques are considered that did not exist when the first edition was published! The book begins with coverage of materials used, pre-spray treatment, and the techniques used. It then leads into the physics and chemistry of spraying and discusses coatings build-up. Characterization methods and the properties of the applied coatings are presented, and the book concludes with a lengthy chapters on thermal spray applications covers such areas as the aeronautics and space, automobiles, ceramics, chemicals, civil engineering, decorative coatings, electronics, energy generation and transport, iron and steel, medicine, mining and

the nuclear industries.

The Science and Engineering of Thermal Spray Coatings Elsevier

Rapid-Cycle Real-Time PCR is a powerful technique for nucleic acid amplification and analysis that often requires less than half an hour to perform. Samples are amplified by rapid-cycle PCR followed by immediate melting curve analysis in the same instrument. Melting curve analysis of PCR products with SYBR Green I often allows product identification without gel electrophoresis. Furthermore, in the presence of fluorescent hybridization probes, melting curves provide "dynamic dot blots" for fine sequence analysis, including single nucleotide polymorphisms (SNPs). The method is often cited as the most versatile, efficient method for nucleic acid analysis in research and diagnostics in the fields of genetics and oncology. Molecular diagnostics has never been easier!

The Steam and Condensate Loop Springer Science & Business Media

Nanoscale science and technology have occupied centre stage globally in modern scientific research and discourses in the early twenty first century. The enabling nature of the technology makes it important in modern electronics, computing, materials, healthcare, energy and the environment. This volume contains selected articles presented (as Invited/Oral/Poster presentations) at the 2nd international conference on advanced materials and nanotechnology (ICANN-2011) held recently at the Indian Institute of Technology Guwahati, during Dec 8-10, 2011. The list of topics covered in this proceedings include: Synthesis and self assembly of nanomaterials Nanoscale characterisation Nanophotonics & Nanoelectronics Nanobiotechnology Nanocomposites F Nanomagnetism Nanomaterials for Energy Computational Nanotechnology Commercialization of Nanotechnology The conference was represented by around 400 participants from several countries including delegates invited from USA, Germany, Japan, UK, Taiwan, Italy, Singapore, India etc.